



EU Mobile Workers: A challenge to public finances?¹

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Abstract

This contribution analyses recent trends in labour mobility within the EU and considers the challenges it generates in sending countries. It finds that mobile workers abroad can make a significant contribution to the GDP of their host countries and that the incomes of mobile citizens abroad can be of considerable benefit to those who stayed at home.

However, large-scale (net) emigration could have negative effects on the source country. Negative effects of outward mobility can arise through brain drain and when emigration erodes the tax base, making it more difficult for governments to finance current expenditure and to service (a large) public debt. Within the EU, the evidence of brain drain appears limited to southern euro area countries. The negative impact of the erosion of the tax base through emigration is mitigated by lower expenditure needs and additional VAT revenues on the expenditure financed by remittances. For high debt countries, population ageing exacerbated by mobility, rather than mobility alone, is the main issue for debt sustainability.

A key finding is that with ongoing reductions in wage gaps, in the future, differences in structural factors may be more important than (after-tax) income in the decision to emigrate. States which struggle the most to enhance the quality of the life of their citizens, through effective public spending and provision of high quality public goods, may experience the largest outflows of workers.

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1. Introduction

Freedom of movement of people and workers is at the heart of the single market and the entire EU project. Over the last decade, EU citizens have made increasing use of this freedom. Intra-EU labour mobility has risen significantly over the last decade. But it has also become more contentious.

Two factors have driven the growth in labour mobility. First, the two waves of the EU enlargement of 2004 and 2007 resulted in large flows from the New Member States (NMS) in Central and Eastern Europe to the EU-15. Large movements of people started in the aftermath of the first enlargement in 2004 and swelled even further around 2007 with the enlargement to Romania and Bulgaria. The United Kingdom and Ireland, which decided not to introduce the temporary controls established by other EU member states (MS), attracted disproportionately large inflows in the initial phase. More recently, Germany has become the main destination countries for migrants from central and eastern EU countries. There is one exception: people from Romania far preferred moving to Italy and Spain, at least until 2015. These flows have persisted for a more than decade and seem to be driven by a combination of better working conditions and higher salaries. The cumulative negative impact of these flows on the labour supply in some of the source countries has been substantial. It is only now that some tentative evidence of a slow-down is appearing in the net flows from some countries. This seems to be the case of Poland, which has experienced high and persistent growth rates and a rapid convergence in wages.

Second, more recently, mobility flows have increased from south to north in the euro area. This flow is, for the time being, much smaller than that east-west and seems to be motivated mainly by differences in job opportunities, reflecting economic conditions in the south that worsened during the euro area crisis. In theory, mobility of workers is an important channel to absorb the impact of asymmetric shocks across member states. The economic crisis, which mostly hit southern euro area countries and resulted in diverging unemployment patterns across the Union, provided a test for it. Nine years after the beginning of the crisis in Greece, there is no doubt that outflows towards northern countries have increased, even if with a certain lag compared to the start of the crisis, but it is difficult to quantify to what extent this helped local economies as a stabilisation mechanism.

More generally, while desirable in the perspective of the EU single market, the size and the duration of the (net) flows have generated growing concern both in sending and in receiving countries. In some receiving countries, the focus has been on the management of large inflows of foreign workers. This is particularly the case in countries where unemployment has been increasing and foreign workers are perceived as competitors to local workers. In the sending countries, concerns are driven by the risk of loss of human capital (i.e. brain drain) in a context of demographic decline, as is the case in most of NMS, but also because of the effect that a shrinking working population can have on public finances. Both effects can create a public finance problem when government expenditure does not fall and public debt is substantial.

The experience of the US often constitutes a useful example for Europe. Until recently, it was widely taken for granted that mobility is much higher in the US (see box 1). However, this is changing. While mobility has greatly increased in the EU over the last decade, it has fallen in the US since the 1990s (Molloy et al., 2011). This latter development has been a cause of concern for policy makers because a high degree of labour mobility in the US was considered a sign of strength, allowing the economy to react better to shocks. However, this is not a point of view widely shared in Europe.

Box 1. Mobility in the EU and the US: a transatlantic comparison

A widely held ‘stylised fact’ is that Americans are mobile, but Europeans are not. Labour mobility might have fallen recently in the US, but it remains much higher than in Europe.

However, this broad comparison might not be very useful in a macroeconomic context as one needs to distinguish between gross and net mobility (or rather gross and net migration). A large number of people coming and going might indicate a high mobility, but does not contribute to adjustments in local unemployment. What matters at the macroeconomic level is the net movement. References to the high degree of labour mobility are often misleading because they refer to the size of gross movements (between States of the US or Census regions). One of the few studies that take this difference into account is Kaplan and Schulhofer (2012), which finds that:

“Gross flows of people across states are about 10 times larger than net flows, yet have declined by around 50 percent over the past 20 years.”

The graph below (taken from this study) shows that net interstate movements amount to a small fraction of the resident population (about 0.2 %).

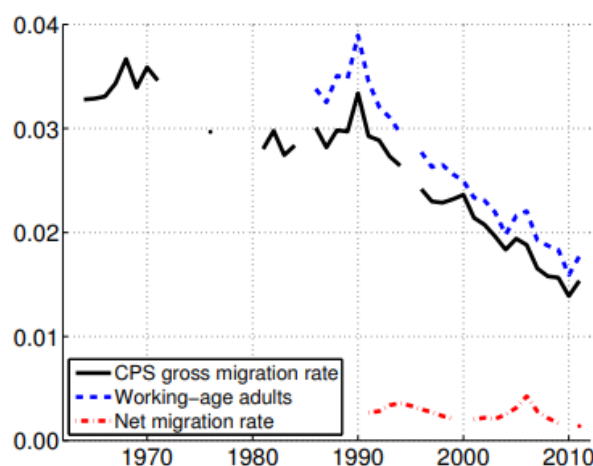
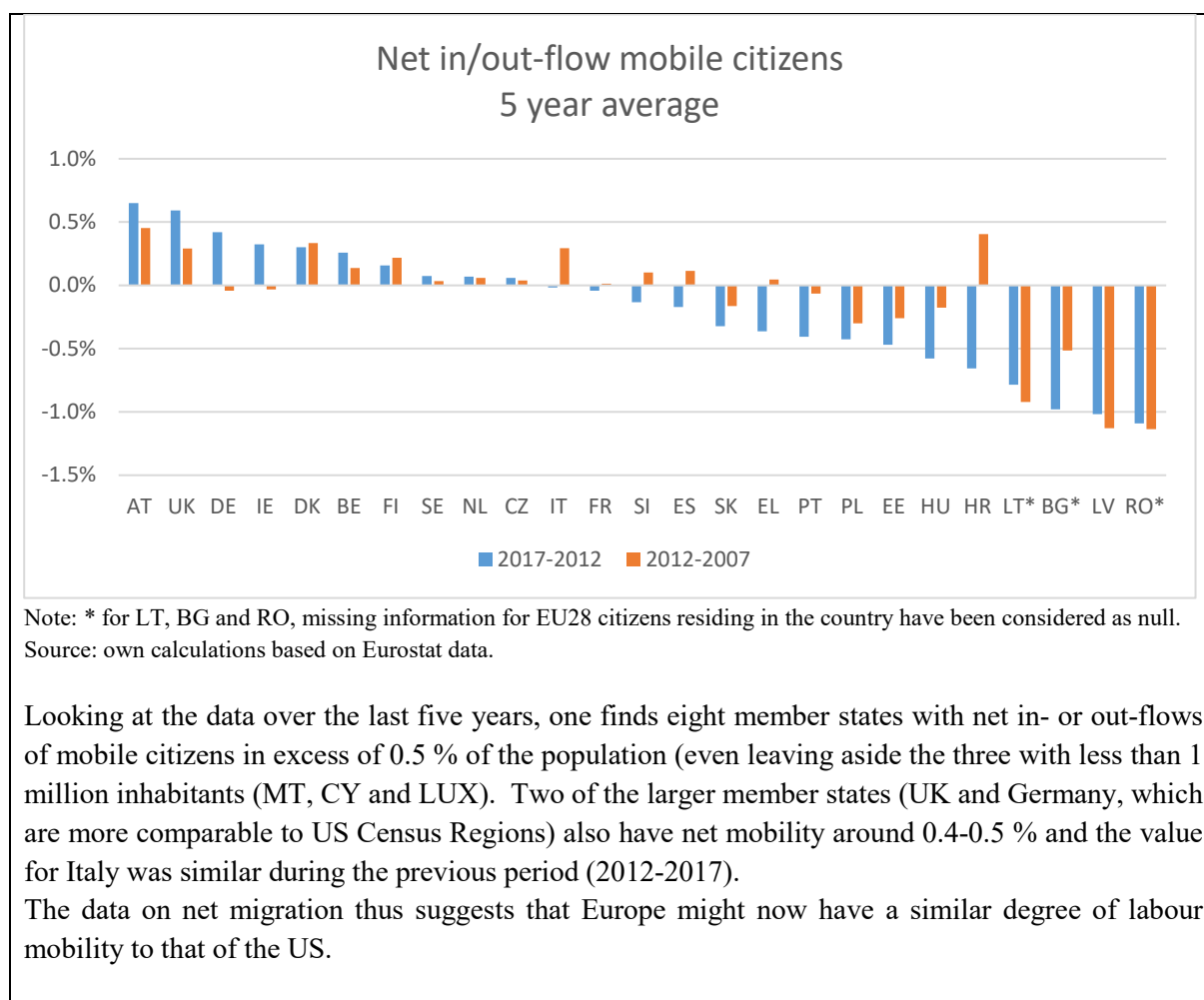


Figure 1: Gross and net interstate migration.

Source: Authors’ calculations from Current Population Survey (CPS) micro data and Census Bureau population estimates. The numerator of the net migration rate is one-half of the sum of absolute values of inflows minus outflows in each state. (This number is the minimum number of moves that would have to be prevented to set net migration to zero in every state.) The denominator of the rate between years t and $t + 1$ is the U.S. population at t minus deaths between t and $t + 1$.

Another study (Molloy et al., 2011) confirms this order of magnitude (net movements of around 0.2-0.5% (per annum) for movements across Census regions. One should compare these net flows to the net flows (intra-EU) across national borders in Europe. The chart below thus shows the net intra-EU migration rates (i.e. net movements of mobile citizens).



Labour mobility is a complex topic. In this contribution, we focus on a few selected issues;³ specifically on the challenges raised by intra-EU mobility of workers, without considering migration of third-country nationals.⁴ Moreover, we concentrate on the perspective of the sending countries.⁵ The next section provides an overview of the current state of mobility patterns in the EU, focussing on the working age population and also considering the educational level of workers. Section 3 attempts to assess to what extent the brain drain phenomenon is a problem within the EU. Section 4 assesses the main drivers of mobility, namely cross-country wage differentials, unemployment differentials and differences in standards of living, and to what extent they are likely to be relevant in the future. Section 5 looks at the impact of emigration on public finances, focussing on labour taxation, remittances and demographic change. Section 6 considers labour mobility as a response to idiosyncratic shocks in the EMU and the negative effects it can entail. Lastly, section 7 concludes with a distillation of policy implications.

³ We also do not analyse the consequences of the likely exit of the United Kingdom from the EU.

⁴ As documented by the European Commission (2018), the stock of extra-EU migrants (of working age) is larger than that of intra-EU mobile workers, so in this way the two issues are not confused.

⁵ There is an abundant literature on the impact of immigration on the host countries. For a survey, see OECD (2013) and Kancs and Lecca (2017); for the case of intra-EU context see Barslund and Busse (2016).

2. Patterns of labour mobility within the EU: where do we stand?

The mobility of EU citizens has increased substantially in recent years. Just under 4% of EU citizens of working age (20-64) now reside in another member state than that of their citizenship (for 2017 the figure is 3.8%). This share has increased by about 50% over the last 10 years, as it stood at 2.5% in 2007. This average number hides very large differences across countries. As shown in Figure 1, the proportions of own nationals of working age living abroad ranges from 1.0% in Germany to close to 20% in Romania.⁶

Figure 1. Mobile citizens relative to population in origin country in 2017, working age pop. (20-64)



Source: Authors' elaboration based on Eurostat.

In general terms, NMS have a higher proportion of mobile citizens (of working age) than most old EU MS. The only exception is Portugal, where almost 14% of the working age population lives abroad; unlike for the NMS, this large stock is not only the result of recent waves of migration but a process that started in the 1990s (see Figure in Annex 1). Similar considerations apply to Croatia. By contrast, and not surprisingly, emigration from the NMS that joined most recently increased dramatically after 2007 and these are the countries suffering the largest population loss, both in comparison with the home population and in absolute numbers. In countries like Romania the outflow has reached about 1% per year, and up to over 1.5% in certain years. This is much higher than the outflow of mobile citizens from larger southern countries after 2010.

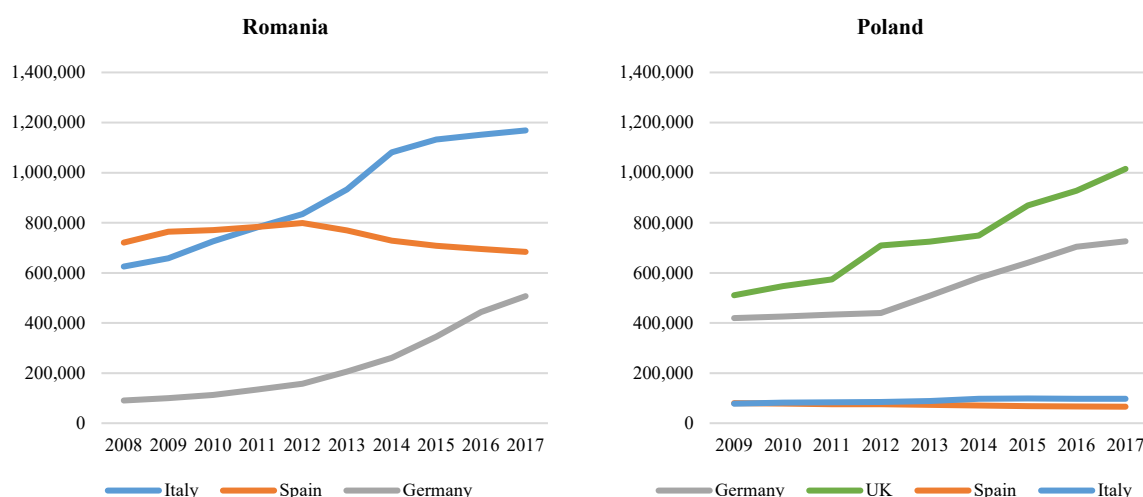
⁶ Annex 1 illustrates how this has changed over time.

In considering these figures one has to take the consequences of size into account. In an area with free mobility there should be a certain amount of gross movement across borders. In a small country, it is more likely that a worker who considers moving will find a better opportunity abroad. It is thus not surprising that the smaller member states have a higher proportion of mobile citizens abroad. For example, 8% of the working age population of Luxembourg work abroad. But many more mobile EU citizens work in Luxembourg, resulting in a strong positive balance. Larger Member States show much lower mobility. Only about 1% of the working age population countries of France and Germany resides abroad (and the two countries have currently very different net flows of EU-28 citizens). One should thus compare countries of similar size. For example, the 7.3% value for Poland is large relative to the 1.6% of Spain given the similarity in overall population numbers. Very large differences are found among countries with around 10 million inhabitants, ranging from the Czech Republic with 1.7% to Portugal with almost 14%.

Not surprisingly the largest MSs are also the largest hosts for mobile workers. The UK – the only MS, together with Ireland, to not maintain barriers to labour mobility after 2014 – has the largest stock of mobile citizens from the NMS. Germany is another key destination, and has surpassed the UK in terms of flows for some years.

Size is clearly an important, but not the only predictor of where mobile citizens have moved. Large differences exist, for instance, between France and Italy. The latter, despite higher unemployment than France, received many more mobile citizens from NMS. Similar considerations apply to Spain. As shown in Figure 2, mobile workers from Poland and Romania, the two main sending countries in absolute numbers, chose respectively the UK and Germany and Italy and Spain as main destinations. D’Albis et al. (2018), among others, note that destination is often chosen based on vicinity and common language or similarity in the language. This may explain the choice of Spain and Italy for Romanians. In practice, the presence of networks of nationals and family members, who sometimes sponsor the trip to and can provide accommodation in a certain country, can strongly affect the selection of the destination. The latter can explain the growing cumulative effect observed below.

Figure 2. Citizens from Romania (LHS) and Poland (RHS) resident in selected receiving countries



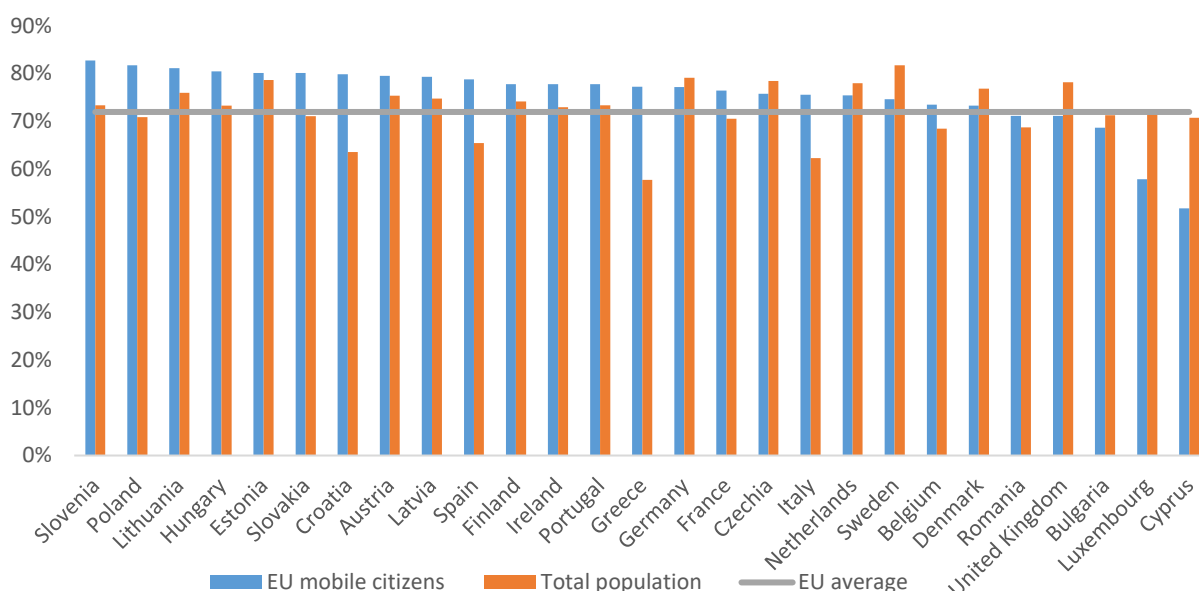
Source: Authors' elaboration based on Eurostat.

While there is no doubt that the stocks of mobile citizens have been growing strongly over the last decade, the crucial question is whether this is going to continue in the future. For example, for Poland,

one finds that the number of mobile citizens has stagnated in the last year for which data is available (2017). It is however too early to say whether this change is just a blip in the data, or constitutes a new pattern. As will be explained in more detail in Section 4, one important driver of migration is the wage gap. If this is the case, one should expect flows to slow down in the future, as wages in the NMS have been increasing much faster than in the old EU MS.

In this respect, it is also important to note that the data shown so far refer only to the number of persons of working age living abroad. But not all of them are working. Figure 3 shows the employment rates of the total population ('at home') and of those residing in another EU country. It is apparent that the employment rate of mobile citizens is generally higher than for the home population for most NMS. This pattern is particularly pronounced for two old MS, Italy and Greece. Combined with the fact that the wage differential in these two countries, relative to the EU average, is fairly small (see Section 3.1 for more details), this suggests that the lack of employment opportunities in these countries must constitute an important reason for moving to another member state.

Figure 3. Employment rate of persons aged 20-64, by country of citizenship, 2017



Source: Authors' elaboration based on Eurostat.

Box 2. Beware of data on migration

This contribution relies to a large extent on data from the Eurostat section Labour Mobility. This provides demographical and labour statistics on people of working age (15-64) either born in the European Union (and EFTA area) or having the citizenship of an EU (EFTA) country and residing elsewhere on the EU (and EFTA) territories except their country of birth/citizenship. These data are combined with the EU Labour Force Survey, which contains information on the characteristics of the workers. We consider this source as the most reliable one for the purpose of this paper. The Labour Force Survey provides data on stocks. The stocks at different points in time can be used to calculate the flows of workers from source countries.

Unfortunately, the published extracts from the Labour Force Survey do not give the entire matrix of where workers, from a certain country, reside. It is thus not possible to calculate the net variables (both stocks and flows) from one consistent source. We generally had to combine several sources to calculate net flows of workers.

Data on the flows of people (i.e. not just workers) are often unreliable given different definitions of residency and population registries. Mirror statistics are rarely available, but when they exist show large discrepancies: namely

the number of immigrants registered in country A, from country B, is often very different from the number of emigrants recorded in country B as going to country A.

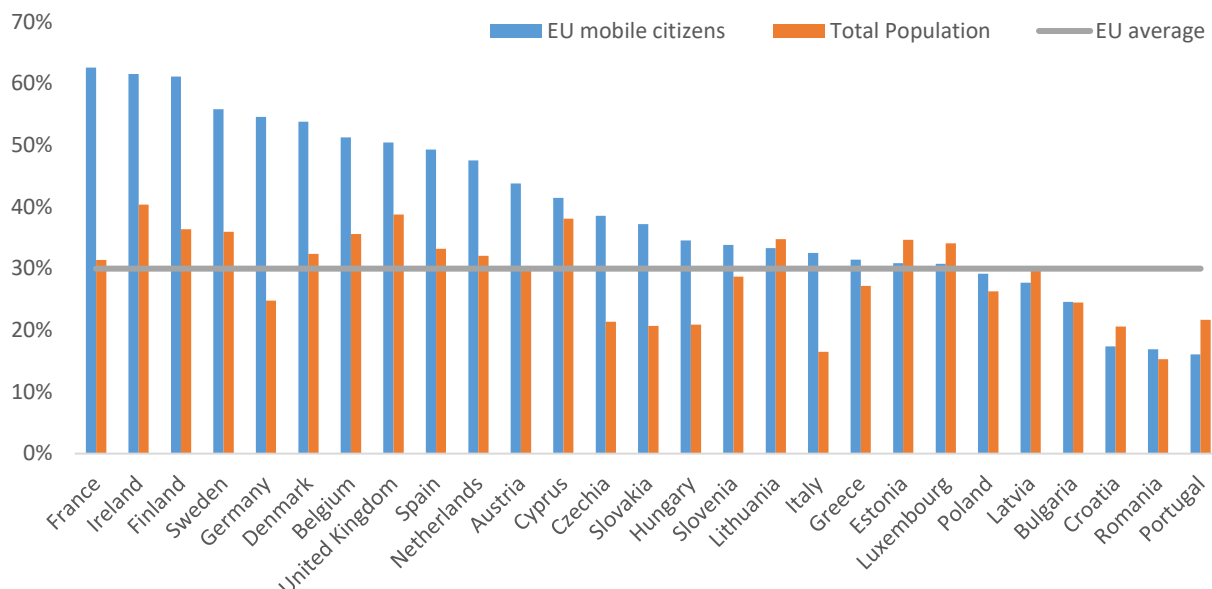
The data difficulties become overwhelming when trying to investigate whether the outflows of nationals from NMS is being replaced by migrants from further east, outside the EU. Poland is a clear example.

For Poland, it is often asserted in the media that up to 2 million Ukrainians work in the country. However, it is difficult to find hard statistical data that underpin this number. The number of Ukrainians residing in Poland is below 200,000, according to Eurostat. Some sources maintain that 300,000 Ukrainians have registered with social security in the country. Polish employers have registered over time more than a million requests to employ a foreigner (Ukrainians can accept short-term work assignments without permit and without social security charges). However, most of these permits are for short periods. It is thus difficult to judge how many Ukrainians are at any point in time present in Poland and legally employed. Similar conclusions are likely to apply to many countries.

2.1 Mobility and education patterns

One often voiced fear about emigration is that highly educated citizens are the most mobile and thus the most likely to leave and take human capital away from the home country. The data shown in Figure 4 confirms the regularity that highly educated persons (i.e. with tertiary educational attainment) are indeed more mobile.⁷ For the large majority of MS, the proportion of those who have a tertiary degree is much higher among the mobile than among the home population. For example, over 60% of mobile French citizens have reached this level of qualification. But among French citizens, resident in France, that proportion is only slightly above 30%. Similar considerations apply to Finland, Germany and other old EU MS. By contrast, for some NMS (and for Portugal) one finds the opposite: the proportion of university graduates is higher among the home country population than among mobile citizens abroad. This evidence seems inconsistent with the hypothesis of brain drain: countries losing more low than highly skilled people should experience an improvement in the skill composition of the domestic labour force.

Figure 4. Tertiary educational attainment of persons aged 20-64, by country of citizenship, 2017 (% of the respective population)



Source: Own elaboration based on Eurostat.

⁷ Mollowy et al. (2011) show that, in the US, college graduates have much higher propensity than lower skilled to migrate to another state.

3. Is there a brain drain or not in the EU?

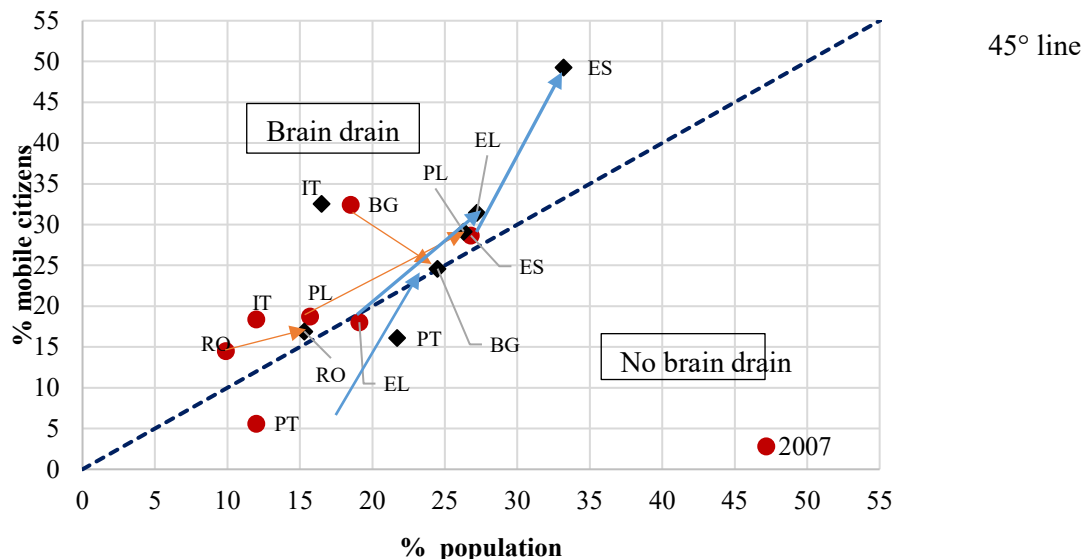
In a neoclassical, and short term perspective, emigration can reduce total output but also increase per capita income of sending countries, hence accelerating their convergence. However, as pointed out in Atoyan et al. (2016), if one accounts for human capital effects and low substitutability between skilled and unskilled workers, as suggested by endogenous growth theories, the welfare and productivity of those left behind may decline. Emigration by the high-skilled could indeed result in lower productivity in the sending country. According to economic geography theories, skilled labour tends to earn higher economic returns where it is abundant, so emigration of such educated workers would have disproportionately large negative impacts on productivity and economic outcomes in sending countries.

It is for all these reasons that brain drain has been a widely investigated issue in economic literature. Most existing evidence refers to developing countries, where human capital is usually a scarce resource and brain drain can thus hamper future development. This phenomenon is well documented for this category of countries where emigration consists mainly of the highly skilled.⁸ While an exact definition of brain drain does not exist, the positive gap between the degree of education of emigrants and that of the home population is a typical indicator of brain drain.

Atoyan et al. (2016) investigate the stock of migrants by skill level for the Central, Eastern, and Southeastern Europe⁹ moving to OECD countries¹⁰, up to 2010, and claim that in the region there is evidence of brain drain, warning about the implication on productivity in countries where the share of highly educated in the population is particularly low, such as Croatia and Romania.

Following the same idea, we perform a similar exercise focusing only on the EU member states, both as sending and destination countries, and using Eurostat data up to 2017.

Figure 5. Share of highly educated in population vis-à-vis share of highly educated among mobile citizens, selected major sending countries (tertiary education attainments, levels 5 to 8), 2007 and 2017



Source: Own elaboration based on Eurostat. Note: Bulgaria, Greece, Italy, Poland, Portugal, Romania and Spain.

⁸ See among others Docquier and Rapoport (2004) who find that globally the propensity of the highly skilled to emigrate is about 5 times larger than that of the low skilled.

⁹ In addition to EU countries, this analysis includes CIS countries, namely: Belarus, Moldova Russian Federation, Ukraine; Western Balkans, namely Albania, Bosnia and Herzegovina, Kosovo, Macedonia (FYR), Montenegro and Serbia; and Turkey.

¹⁰ The study uses OECD data.

In order to visualise how trends may have changed over time, Figure 5 plots the share of mobile citizens with tertiary education (vertical axis) and the share of local population with a tertiary education attainment (horizontal axis) for a number of selected EU countries, in 2007 and in 2017. Countries to the left of the 45° line have migrants who are more educated than the population remaining. This seems to be the case in most of the countries considered in the figure. There is only one clear exception: Portugal, which is below the line in both years. According to the scatter plot, the selection bias has become smaller, when comparing 2007 to 2017. Romania and Bulgaria unmistakably moved closer to the 45-degree line, with the increase in the share of the tertiary educated in the home population has been larger than in the share among mobile citizens, clearly signalling ‘less’ brain drain. The case for Poland is similar, if to a lesser extent (see the downward sloped and relatively flat orange arrows). The opposite holds for Italy, Greece and Spain. The steep blue arrows in the chart signal a much stronger expansion of the share of the highly educated among mobile citizens than the home population.

One possible explanation for the differences between 2007 and 2017, and the different results of Atoyán et al (2016), is that the removal of barriers within the EU has made moving possible and gradually more affordable by anyone, not only by those with tertiary education. In addition, the increasing presence of networks of nationals and family members may have substantially augmented the feasibility of look for opportunities outside her/his home country.

As a side remark, the limited progress of Italy in terms of educational attainment among the local population is rather striking. In 2017, only Romania had a lower share of the population with tertiary education, but Romania was at an even lower level in 2007.

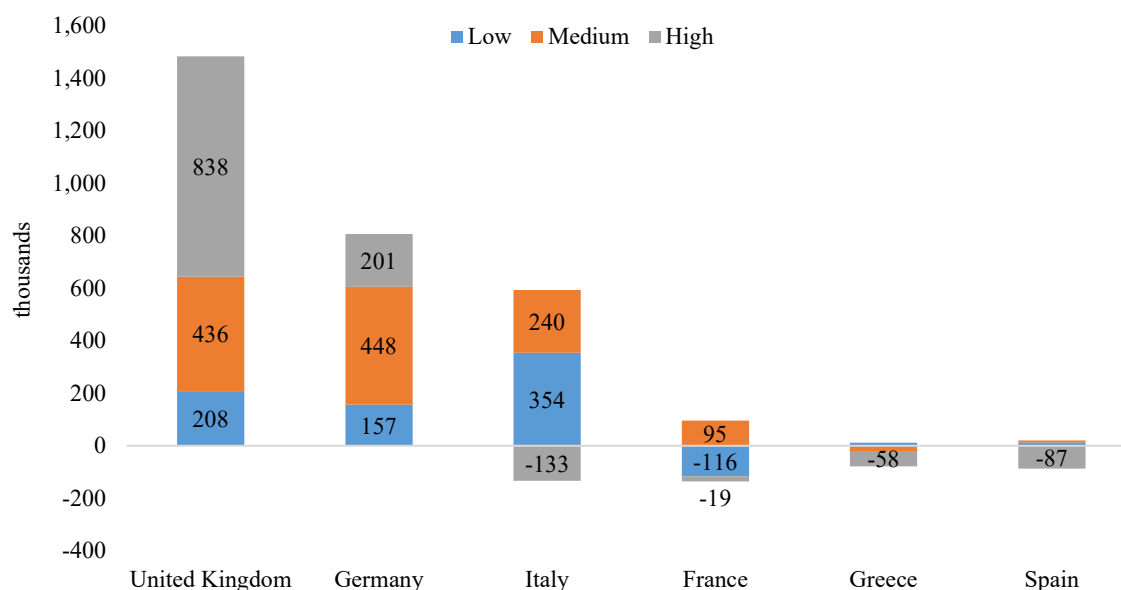
Two additional considerations are relevant in relation to the detection of brain drain.

First, for the many old EU MS, for which the highly educated are more mobile than the general population, as appears from Figure 4, one cannot conclude that they are all experiencing brain drain – because some of them also attract a considerable number of highly educated people. This phenomenon is often called ‘brain circulation’: the highly educated leave and arrive at the same time in relatively high numbers in a given country. This is usually associated with knowledge diffusion and global economic integration, both of which are beneficial to economic growth and development. For this reason, many countries favour the immigration of highly skilled people, even if there is not a real shortage in the country.

Figure 6 shows the net gain or loss in different skill classes for some of the major destination countries. The bars depict the net migration (the change in stock between 2017 and 2007) for the three main classes of education (below secondary, secondary completed and tertiary completed).

The broad picture that emerges is that the southern euro area member states have experienced a net emigration of highly skilled citizens. By contrast, major destination countries, such as Germany and the UK, have recorded a significant net increase at all three education levels. For France, there has been almost no net change. In the case of Germany, the net intra-EU migration of people of working age was distributed over the three skill classes roughly in the same proportions as the national population. The UK seems to have been the ‘winner in the war for talent’ as its population gain has been strongly skewed towards highly educated European citizens. The net gain in university graduates amounts to over 800,000 in ten years, four times more than the 200,000 people at the low end of the skill scale.

Figure 6. Net migration within the EU by education level over the period 2007-2017, selected old EU MS



Note: Educational attainment is used as a proxy for education level, following the division of ISCED (2011): less than primary, primary and lower secondary education (levels 0-2) for *Low*; upper secondary and post-secondary non-tertiary education (levels 3 and 4) for *Medium*; and tertiary education (levels 5-8) for *High*. Working age population (20-64 years old) is considered.

Source: Own elaboration based on Eurostat (lfst_lmbpcita; lfst_lmbpcited; lfsa_pganws; edat_lfs_9911).

For Italy, one finds a clear ‘brain drain’ pattern in that there has been a net loss of around 130,000 highly skilled people between 2007 and 2017, and at the same time net immigration of the two lower skill classes. Greece and Spain have also mainly lost the high-skilled. This would suggest that the brain drain may emerge as issue within the euro area, though for the time being the magnitude of the phenomenon remains limited.

The second aspect, which does not necessarily emerge from the two charts above is that if a certain category of professionals, for instance engineers, doctors or nurses emigrate *en masse*, this can pose a real problem to a nation as these professionals help in delivering critical services to the population of the country. Therefore, even if on average the share of the tertiary educated at home is higher than among mobile workers, in principle certain sectors may still be exposed to a brain drain.¹¹ This phenomenon has been documented for some Asian (e.g. Philippines) and African countries, where brain drain is a severe problem and tends to be concentrated in certain professions that involve knowledge that is common worldwide, such as medicine and engineering. This phenomenon may also have been exacerbated by successful targeted policies, in advanced economies, to attract talents. This has also been the experience in EU countries facing shortages in the health care sector. The European Commission (2018) reports that Romania is the source of almost half of all EU mobile health care workers, with Italy representing the main destination country. However, in the case of Italy the phenomenon does not predominantly concern doctors.¹² If it cannot therefore be qualified as brain drain, it nevertheless remains true that such losses can clearly raise serious concerns about the provision of health services for the home population.

¹¹ See for instance Beine et al. (2008).

¹² At the same time as De Rosa et al. (2018) note, Romania has the lowest density of doctors in the EU and about 25% of doctors left the country. As this happened in a context where about 20% of the total population emigrated, the doctors-to-population ratio dropped to a lesser extent.

Overall, in the EU as in other countries in the world, highly skilled people are highly mobile and when levels of educational attainment in the population increase, so does emigration. EU east-west mobility is exceptional in that the mobile workers concerned are a more representative cross-section of the population – it is not always the case that the highly skilled emigrate more than the rest of the population. The source countries in Central and Eastern Europe have also lost a high percentage of medium and low, not only highly skilled, making the mobility phenomenon particularly severe because of its size and persistence and not necessarily because of the brain drain. If the trends of the last decade were to continue in the next, brain drain would become a serious problem in some old EU MS while some NMS would experience depopulation.

Box 3. Global versus intra-EU migration.

Many evaluations of intra-EU labour mobility are coloured by the global experience of migration. Increased mobility is indeed a global phenomenon. As illustrated in the table below, the OECD reports that the total number of emigrants increased by over one half between 2000/01 and 2010/11. Overall, (e)migration rates are the second highest in Europe (which in this analysis encompasses much more than the EU), at over 5%, not much below the value for South and Central America and much higher than for Africa and Asia, where rates are below 1%.

One important pattern concerning global migration is that the brain drain phenomenon is primarily a feature of low to upper-middle income countries. As illustrated in the table emigration rates for the high skilled are 4 times higher than for the total in Asia, two times higher in Africa and one half higher in South and Central America. In Europe, the relative difference between high skilled and the total emigration rate is much lower (only 14%).

Emigrants and emigration rates (15+), by region and income level (2000/01 and 2010/11)

	2010/11				2000/01			
	Number of emigrants		Emigration rate		Number of emigrants		Emigration rate	
	Total	High-skilled	Total	High-skilled	Total	High-skilled	Total	High-skilled
<i>By region:</i>								
<i>Africa</i>	8489.9	2402.4	2.0	9.6	5778.6	1357.0	1.7	10.1
<i>Asia</i>	23937.4	10551.5	0.8	3.4	15625.2	5839.2	0.6	3.3
<i>Europe</i>	35551.4	10284.0	5.1	5.8	27626.3	6260.9	4.2	4.4
<i>Northern America</i>	2351.9	1159.8	0.8	0.8	1957.8	841.3	0.8	0.7
<i>Oceania</i>	1161.6	425.6	4.4	5.2	894.6	272.0	4.0	4.4
<i>South and Central America</i>	25162.6	4439.1	5.6	7.6	17193.5	2342.2	4.7	6.5
<i>By income level:</i>								
<i>High income OECD</i>	27933.0	9900.3	3.2	3.4	23987.6	6446.8	2.9	2.8
<i>High income non OECD</i>	4654.6	1616.2	2.8	2.2	3621.6	1014.5	2.3	1.7
<i>Low income</i>	3605.3	1169.6	0.9	7.1	2125.5	575.9	0.7	6.5
<i>Lower-middle income</i>	21422.7	7795.3	1.4	5.6	13288.0	4023.4	1.1	4.8
<i>Upper-middle income</i>	39095.5	8798.9	2.1	4.5	26053.4	4851.9	1.6	4.5

Source: Arslan et al. (2014), p. 38., OECD Social, Employment and Migration Working Papers No. 160

One simple explanation why brain drain is a feature of low income countries and why total emigration is so prevalent in the EU is that barriers to mobility within the EU do not exist anymore, while they may be very high in other regions. For citizens of poorer countries, only the high skilled may have the capacity to not only overcome administrative barriers but also to finance the high initial financial cost of moving. Moreover, many advanced countries have explicit preference systems for attracting the high skilled, which encourages brain drain. No such preferences can exist within the EU.

One important point to acknowledge is that these data are not directly comparable those used in the analysis of this contribution, which focuses exclusively on intra-EU mobility. First, the OECD region ‘Europe’ includes a number of non EU countries, like Russia and Western Balkans, some of which have high migration rates. Second, the destination countries considered are the OECD group. Third, even for EU MS, overall migration also contains non-EU citizens. This latter aspect may be quite significant. The European Commission report on mobility shows that in Germany, Spain, and even more so in Italy and France, third country nationals constitute a larger proportion of the population than EU-28 movers. The ratio of EU non-nationals to third country nationals is about 4 to 5. For some important source countries there is thus a considerable difference between emigration and net emigration.

The comparison of Romania and Poland, which both have a large stock of nationals abroad, points to rather different situations once non-EU migrants are considered. The Commission report suggests that in the case of Poland, immigration offsets over 2/3 of the net emigration of nationals. But this is not the case for Romania.

4. Why workers move to other countries

The economic literature has attempted to understand the factors determining the mobility of workers within the EU. This section considers three complementary drivers: wage and unemployment differentials on one side, and life satisfaction related to standards of living on the other.

4.1 The wage gap: push and pull factor

Cross-country wage differentials have always been considered an important pull/push factor in explaining both skilled and unskilled migration patterns. Within the EU, following the eastern enlargement and the progressive removal of obstacles to free movement of people, the prospect of higher wages in other countries has worked as a powerful element of attraction for workers based in low wage member states.

Over time, as result of a strong process of economic convergence, the wage gap between old and new member states has been declining. However, the magnitude of the initial gap was such that substantial differences remain and, for some countries, it will take some time before the wage gap falls to a level that makes migration less attractive.

In the following we compare wages as measured by earnings in purchasing power standards (PPS). Differences in nominal wages are typically much larger than differences in wages measured in PPS, because prices are typically higher where wages are higher. This is why wage differentials in PPS constitute the appropriate measure if one considers a single person working and living in another member state.¹³

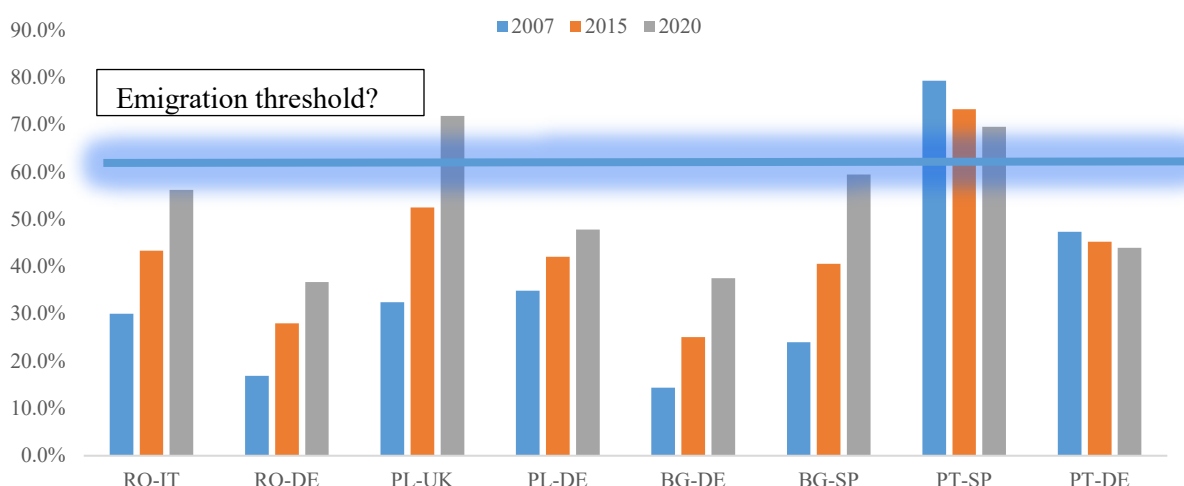
Figure 7 below exhibits the ratio of (gross) earnings, measured in PPS, in some of the major sending countries relative to major destination countries for three years, 2007, 2015 and 2020 (projections on the basis of the present trend).¹⁴ It is apparent that for the three NMS considered here (Bulgaria, Poland and Romania) there has been considerable convergence. For example, Romanian wages have increased relative to those in Italy from about 30% to about 45% in 2015 and are projected to rise to almost 60% by 2020. The increase has been even starker if one considers the ratio of Polish to UK wages: it has increased from about 30% to close to 70%.¹⁵ The latter value is sometimes considered as the threshold for wage-differential-induced migration. In nominal terms, wages in the NMS would of course appear much lower. For Romania and Bulgaria, the PPS factor relative to Germany, for example, is equal to $\frac{1}{2}$, which implies that a ratio of wages of 60% in PPS terms is equivalent to a ratio of 30% in nominal terms.

¹³ As documented below, many mobile workers from the NMS save a considerable part of their earnings to send to family members at home. For this propose, wage differentials in nominal terms might be more relevant than in PPS. However, given that remittances are very difficult to be accurately measured, the choice has been made on earnings measured in PPS.

¹⁴ The analysis in the section has concentrated on national averages of wages. There are of course important regional differences, especially within the NMS (see for instance Gros, Musmeci and Pilati (2018)). A priori one would expect that outwards mobility would be relatively higher in regions with lower wages. However, Goshin (2016) finds that this is not the case for Romania. On the contrary, more people emigrate from regions with higher wages.

¹⁵ This assumes that wages continue to grow at more than 5% a year in Poland, with little decline in the UK (at PPS).

Figure 7. Gross earnings in PPS comparison, selected years and estimate, selected pairs of countries



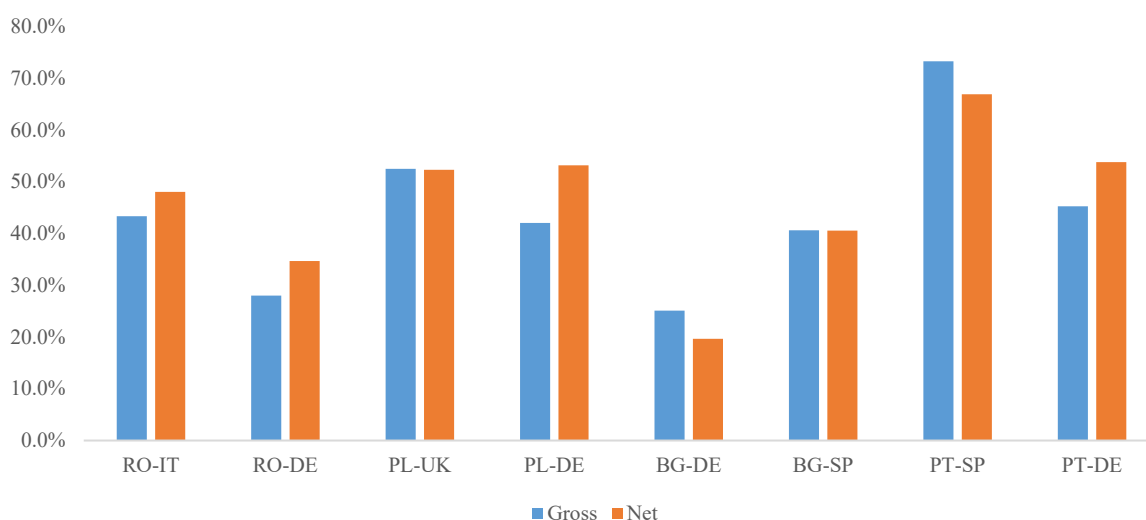
Source: Eurostat, Labour market data (earn_nt_gross).

Note: The projection for 2020 is computed applying the average annual growth rate in compensation per employee in PPS over the period 2007-2015 as provided by Eurostat. Pairs of countries were chosen based on the relevance of the flows and Germany as a common benchmark.

Interestingly, for Portugal, the wage ratio relative to Germany (and Spain) has fallen over the last decade. This contrast between east-west convergence and north-south divergence was already documented in previous work.¹⁶

Potentially mobile workers compare net of tax and benefits, and not just gross, earnings. Figure 8 shows that in reality there is little difference between net and gross earning differentials (2015 data) because tax rates on labour do not differ that much across the countries considered and they are usually lower in NMS.¹⁷ This is why on a net basis, earnings in the NMS sometimes appear higher.

Figure 8. Comparison gross and net earnings in PPS ratios, 2015, selected pairs of countries



Source: Own elaboration, based on Eurostat, Labour market data (earn_nt_gross and earn_nt_net).

¹⁶ See the CEPS contribution to the informal Ecofin, Sofia, April 27/8, 2018.

¹⁷ Tax rates differ of course according to income, family status, etc. This table uses information from Eurostat for a single worker earning the median wage.

Thus there seems to be little indication of harmful tax competition on labour. This topic is discussed separately in section 5.1 below.

4.1.1 The contribution of mobile citizens to foreign GDP and ‘citizens’ product’

In relation to wages, one interesting aspect to consider is how much mobile workers contribute to the economy. National income accounting is based on the residency concept. This applies both to the widely used concepts GDP (Gross Domestic Product) and GNP (Gross National Product). The former is the sum of all the output (products, services) produced by residents in the territory of a state. The latter, GNP (often more properly referred to as GNI), is the sum of all the income earned by residents. The value added produced by mobile citizens abroad thus contributes to the GDP of the countries of destination.

It is interesting, however, to measure the ‘citizen’s product’, i.e. the contribution to income or value added produced by the citizens of a country who work abroad. Box 2 illustrates the calculation for Romania and Poland. It shows that in the case of Romania the total earnings of the 20% of working age population working elsewhere in the EU are equal to about 50% of the total earnings of those who remained at home. For Poland, this proportion amounts to about 20%. The earnings of mobile citizens are thus of a first order of importance for the overall income of source country citizens.

The calculations in Box 3 suggest that mobile workers from Poland and Romania contribute about €50 billion euro in value added each year to the economy of their host countries, thus providing an important contribution to the European economy, over and above the contribution measured by the GDP of their home countries.

Box 4 Wage compensation: the value of intra-EU mobility

Most mobile workers earn much more than in their home country since wages nominal sometimes differ by a factor of four. This implies that the earnings of mobile citizens can loom large relative to those left behind even if only a fraction of the total workforce has emigrated. Simple calculations suggest that in some cases the total amount of wages received by citizens working in other EU countries can be highly significant relative to the total amount of wages received by the population that has stayed behind. This is particularly the case for Romania because of the combination of a large wage gap with respect to major destination countries and a large share of mobile citizens (19% of the working age population) in 2017 (Figure 1).

In this illustrative calculation, we assume that mobile workers from the NMS earn less than the national average of the destination countries. One reason for this is that the average skill level of mobile workers from countries like Romania (while equal to the home country average) is lower than that of the destination country. Moreover, there are always difficulties in recognising formal qualifications across countries.

The question we thus ask is how large the total earnings of the mobile workers abroad should be, compared to those at home, even when considering that the actual wages earned abroad might be lower than the average of the host country.

We make this illustrative calculation for two countries: Romania, where we assume that mobile workers receive only 2/3 of the average compensation per employee in the major destination countries (i.e. DE, IT, ES). Under this assumption we find that the overall compensation received abroad still represents slightly over a half (51.6%) of that earned by the active population in Romania.

For Poland, where a smaller proportion of the working age has become mobile, we assume that the average wage received abroad is 3/4 of that of major destination countries (mainly the UK) on account of the much higher proportion of highly skilled Polish mobile citizens. We still find that the wages earned by Polish citizens elsewhere in the EU amounts to a fifth (20.3%) of the wage bill in Poland itself.

	Romania	Poland
Mobile workers (million)	1.7	1.4
Avg. Nominal compensation per employee at destination* (€ thousand)	26.6	29.9
Overall compensation of mobile workers (€ billion)	44.4	45.1
Employed population in origin country (million)	8.3	16.0
Nominal compensation per employee in origin country (€ thousand)	10.4	13.9
Overall earnings for employees in origin country (€ billion)	86.0	222.3
<i>Comparison of compensation of mobile citizens with national (%)</i>	<i>51.6%</i>	<i>20.3%</i>

Note: Working age population (20-64) is used for both mobile citizens and active population in origin country.

Data refers to 2017.

* Countries considered are Germany, Italy, Spain and the United Kingdom as they are the major recipient of intra-EU mobility for both Romanians and Polish people. Assuming 2/3 of nominal compensation for employees at destination for Romania and 3/4 for Poland.

Source: Own elaboration based on Eurostat (lfst_lmbpcita; lfst_lmbercita; lfsi_emp_a; migr_pop1ctz) and AMECO (Nominal compensation per employee, total economy).

The only measured way workers abroad contribute to their home economy is through remittances. By sending income back home they contribute to the measured income (GNP) of those who stayed in the country of origin. Of course remittances are smaller than the total earnings of workers abroad, but certainly higher than what reported in official accounts. Central banks only record certain bank transfers and transfers from mobile workers to relatives at home take many different forms, especially within the EU where frequent travel back and forth is the norm. However, as broad evidence, remittances are not negligible for many NMS, most notably Romania. In 2007 and 2008, at the peak of the outflows, recorded remittances amounted to more than 3.5% of GDP. Over time the practice has declined, but they still represent close to 1.5% of GDP. In absolute terms, remittances amount to about 60% of FDI.

4.2 Unemployment differential

Cross-country unemployment differentials are traditionally another pull/push factor of migration. Historically, differences in unemployment rates always existed, even within the euro area, with southern countries having on average larger unemployment (and smaller employment) rates. Yet, until recently, flows among old member states were rather limited and regular. It is in 2009 and the aftermath of the euro area crisis, which predominantly hit member states in the southern periphery of the euro area and the Baltic states, that unemployment rates started to diverge. Between 2007 and 2010, unemployment tripled in Spain and Greece and increased by a factor of 4 in Latvia and Lithuania, while in Germany it was declining at a constant pace. This resulted in very large unemployment rate gaps and large differences across countries in terms of job opportunities, attracting mobile citizens from all the EU.

The empirical literature on the topic, which usually uses gravity models to explore cyclical (and some structural) pull and push factors behind bilateral migration flows, finds that the relative unemployment rate is estimated to affect migration significantly. In the EU, according to d'Albis et al. (2018), if the unemployment rate of the destination country increases by 1% relative to the origin country, the bilateral migration flow to this country is estimated to decrease by about 0.14%. They also find that mutual euro area membership intensifies migration towards countries with a relatively low unemployment rate.¹⁸

¹⁸ See section 6 on this point.

Atoyan et al. (2016), who focus on a different set of countries, also find that the unemployment differential and growth differences are important factors push/pull factors.

4.3 Quality of institutions and standards of living

Besides wage and unemployment differentials, there is growing interest in understanding the role of other factors of structural, rather than cyclical, nature that can explain why people decide to move. Atoyan et al. (2016) finds that emigrants, particularly those with skills, leave countries with weak institutions and travel to those with good ones. Indeed, empirical evidence suggests that the quality of institutions matters more for skilled migrants, whereas unskilled migrants appear to be attracted by generous social benefits in the receiving countries. This provides an additional reason for why countries should upgrade institutions and improve government effectiveness. Such policies could help make home countries more attractive for both natives and potential immigrants.

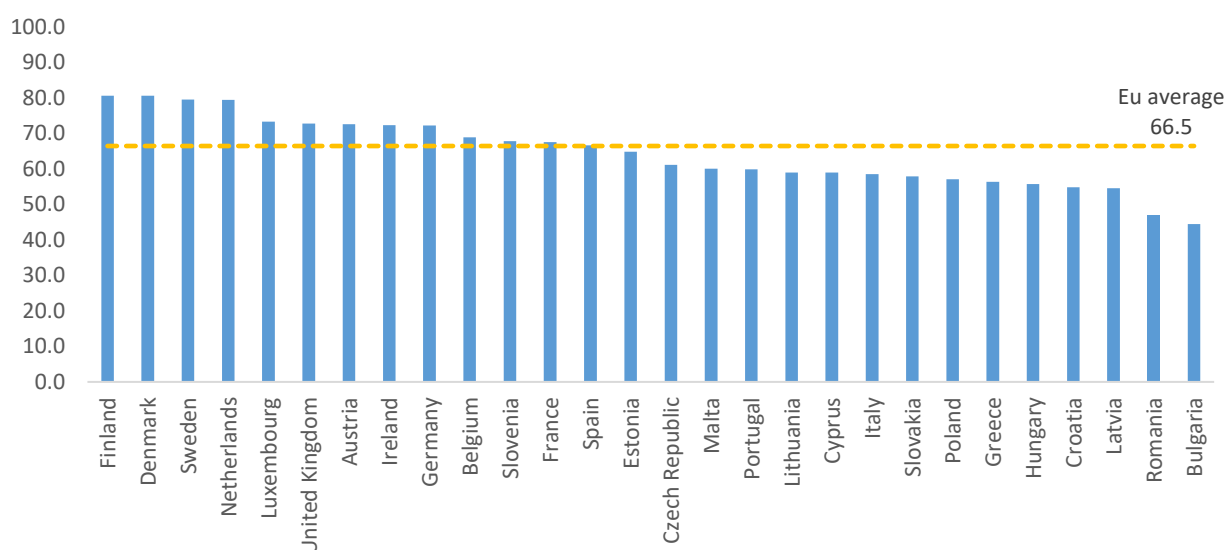
Beyond quality of institutions, recent research has emphasised that life satisfaction and expectations about individual economic prospects may influence intentions to move to another country, thus shaping the final migration decision. There are several dimensions that can be relevant, such as general life standard satisfaction, life satisfaction in the area where one is living, the presence of opportunities for children, satisfaction with household income, and confidence in national elections. The European Commission JRC report (2018) on intentions to migrate finds that being dissatisfied with one's own standard of living is associated with a higher probability to desire and to plan a journey abroad.

Following a similar line of thinking, the EBRD (2018) has looked at the role of urban amenities in people's decisions about migration. While the report covers the intention to migrate in the entire EBRD region, hence a much wider region than the EU, some insights are relevant. The study suggests that being satisfied with the quality of amenities, i.e. quality of air and water, education, healthcare, housing, and roads and transport, in the country of origin reduces the intention to migrate by about one third. This is quite sizeable. According to the study, this is equivalent to a wage increase that would reduce the wage differential between the countries of origin and destination by approximately 70%. Among all amenities, dissatisfaction with air and water, education and housing appears the most pertinent to the decision to migrate. The study also finds that in the Central Eastern Europe region, average satisfaction with amenities improved by around 9% between 2010 and 2015. While this is a positive signal, which reflects the good economic growth in recent years, levels remain low.

One way to capture and map such differences in the perception of people about standards of living, beyond economic growth and wages, is to resort to the Social Progress Index (SPI). This is an indicator of the "capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential".¹⁹ One should expect a high correlation between such indicators and satisfaction with the place where they live. As shown in Figure 9, quite some differences exist across countries: All member states below the average are NMS or from the southern euro area. Among the NMS, while some perform better than Italy and Greece, Romania and Bulgaria are at the bottom of the ranking.

¹⁹ https://ec.europa.eu/regional_policy/sources/information/maps/methodological_note_eu_spi_2016.pdf

Figure 9. Social Progress Index



Source: European Commission, https://ec.europa.eu/regional_policy/en/information/maps/social_progress.

Note: It ranges from 0 to 100, with 100 as best score.

One interesting aspect of the SPI is that it is a composite indicator made up of three broad dimensions of social progress: basic human needs, foundations of wellbeing, and opportunity.²⁰

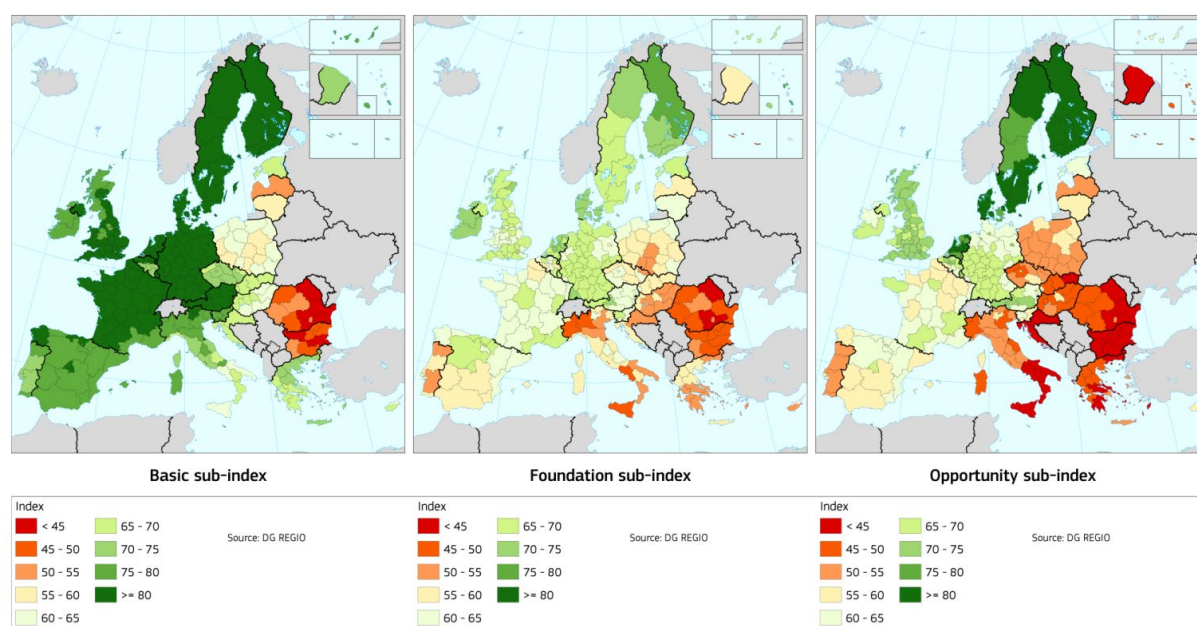
There are some basic life necessities that improve as the economy does, for instance water access, sanitation, and nutrition. In fact, countries at the top of the ranking are developed nations with a high GDP, which allows their citizens to satisfy their basic requirements. However, for other dimensions such as personal safety, environmental quality, access to education (basic and advanced), the relationship to the economy, whether its size or growth rates, is far less clear. Italy is a fairly distinct case in the EU context.

Figure 10, which illustrates details about the different dimensions at regional level, highlights that the most easterly regions in NMS are those performing the worst, even in terms of fundamental needs. When it comes to opportunity, Italy, Greece and Portugal perform relatively badly. UK, Germany, the Scandinavian countries and to some extent smaller countries like Belgium and the Netherlands, which are net receiving countries, are those scoring high on this indicator.

While mobility of workers cannot be explained only by differences in the SPI, it is easy to observe that sending countries are clearly those in red in the maps. This is very much in line with the finding of Atoyan et al. (2016) about the quality of institutions.

²⁰ Basic Human Needs includes medical care, sanitation, and shelter. Foundations of Wellbeing covers education, access to technology, and life expectancy. Opportunity looks at personal rights, freedom of choice, and general tolerance.

Figure 10. Maps with sub-indices at regional level



Source: https://ec.europa.eu/regional_policy/sources/information/maps/methodological_note_eu_spi_2016.pdf

5. The impacts of emigration on growth and public finances

Labour outflows can have an impact on fiscal outcomes as well as on growth, actual and potential.

The existing literature²¹ highlights several transmission mechanisms through which emigration affects public finances. Emigration can reduce economic activity and hence the tax basis, which in turn could dampen tax revenue. Remittances could partially compensate this; by financing consumption, they raise the consumption-based tax revenues. But remittances could also magnify the negative effect on tax revenues by negatively affecting the decisions to work, for instance by increasing the reservation wage, and *de facto* reducing further the tax basis. Another effect of emigration is that, as it mostly concerns working age population, the elderly left behind will increase the relative weight of pension and health spending on expenditure.

The traditional channels through which emigration affects output growth and potential output is the outflows of skilled labour, which can result in a brain drain, thereby affecting productivity. In addition, remittances by raising wages can lead to real exchange rate appreciation and a loss of competitiveness. Remittances can also help boost private investment in physical and human capital.

The empirical analysis of Atoyan et al. (2016) finds that the impact of high-skilled emigration was particularly acute in the Baltic States, Romania and Bulgaria, where the share of population with tertiary education population was very low in 2000. They estimate that emigration has dampened average annual working-age population growth since 1990 resulting in a loss in terms of labour supply of 10-20 percentage points relative to the case of no emigration. The effect appears particularly pronounced in these countries. Using an augmented growth accounting exercise, accounting for net migration, they find that those countries (and more generally about two-thirds of CESEE countries) witnessed lower GDP growth either on account of migration-induced losses in the labour force or worsening skill composition. Specifically, the estimates suggest that migration cut 0.6–0.9 percentage points off annual growth rates in some countries like Romania, Latvia and Lithuania. These are very large numbers and

²¹ See Atoyan et al (2016) for an overview.

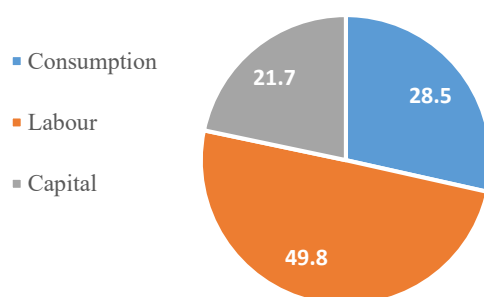
give a striking sense of the losses incurred. However, they are based on data referring to the early 2000s that may be of little guidance for the future. Indeed, as argued earlier, the skill composition of emigrants has changed over time, and in recent years it has appeared less skewed towards the highly educated.

Against this background, the next sub-sections attempt to qualitatively assess to what extent emigration has had an impact on public finances and debt sustainability. One specific issue we consider is that of taxation of labour and its potential role in attracting foreign workers or incentivising domestic workers to leave, especially the skilled.

5.1 Taxation of labour and labour mobility

In order to properly assess the relevance of labour taxation in relation to the issue of mobility, it is useful to present beforehand an overview of current trends in taxation of labour in the EU. On average, in the EU, the breakdown of total tax revenue by economic function, i.e. consumption, labour, and capital, shows that taxation of labour accounts for the largest share, about half of tax receipts, followed by taxation of consumption and taxation of capital.

Figure 11. EU-28 tax revenues according to type of tax base, 2016 (% of total taxes)



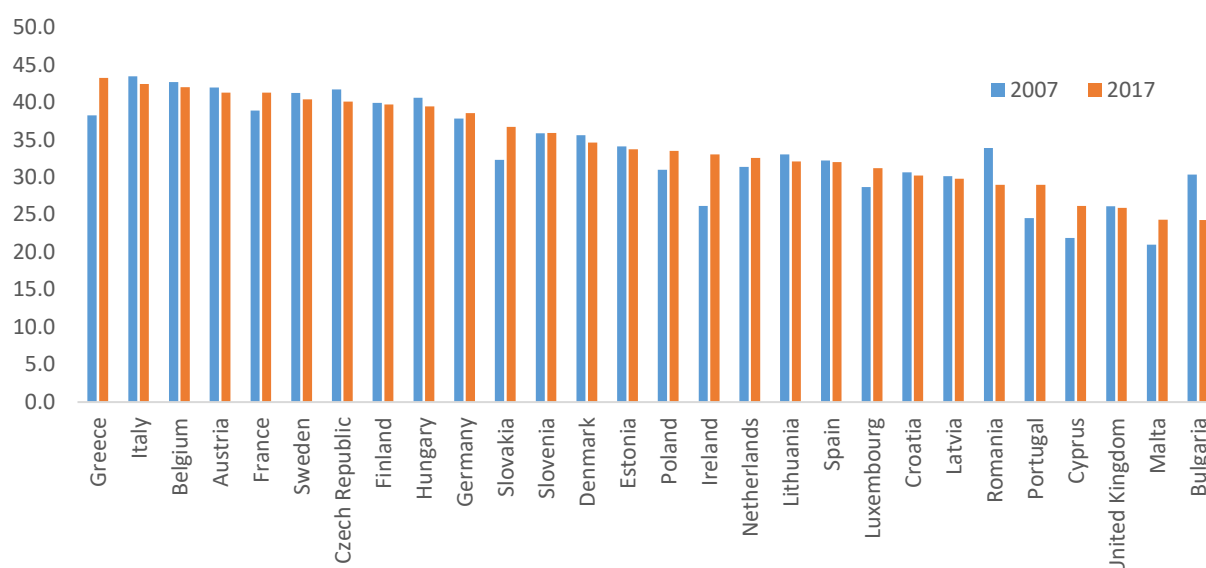
Source: European Commission.

Such averages hide significant differences between member states, with labour tax revenues ranging from almost 60% of the total in Sweden to 34% in Bulgaria (and 39% in Romania). Translated into share of GDP, this means about 10% in Bulgaria, 11% in Romania and 27% in Sweden. The implicit tax rate²² on labour for the EU-28 was 36.3% in 2017, about 1 percentage point above its level ten years earlier. Similarly to above, this rate varies substantially between member states (Figure 12). In 2017, the highest rates on labour are found in Greece (43.3%), and the lowest in Bulgaria (24.3%). During the last decade, Romania and Bulgaria experienced the largest fall (about 5 percentage points), while Greece, Slovakia and Ireland experienced an increase.²³

²² This is a measure of the overall tax burden on all employed labour. It is computed by dividing taxes and social contributions on employed labour income by total compensation of employees and payroll taxes. It is an overall aggregate indicator based on macro-economic variables in national accounts.

²³ In most MS, social contributions and payroll taxes paid by employees and employers account for a much greater share, about two thirds, of labour taxes than personal income tax. Differences across countries and specific tax treatments applied to different categories of households and income levels, make it very challenging to portray them in a sensible comparison. In order to account for these aspects, the ‘tax wedge’ is often used. It is an indicator that aims at comparing the burden of taxation across different categories of household (e.g. single person, married couple, etc.) and income level (e.g. workers on 50% of average wage).

Figure 12. Implicit tax rate on labour, %



Source: European Commission.

Taxes on labour increase the gap between labour costs and take-home pay and consequently reduce labour supply and demand. These effects are particularly important for groups with more elastic labour supply and demand such as low income earners. In some countries, policymakers have made efforts in recent years to target labour tax cuts at the bottom end of the wage scale in order to boost the employability of low-skilled workers. This was most notably the case in Romania and in Italy where, between 2012 and 2017, the tax wedge²⁴ for a single worker without children at 50% of average earnings, fell from 42.2 to 37.2% and from 41.5 to 36.2% respectively.²⁵

As shown in Figure 11, the revenues collected from the taxation of labour constitute on average about a half of all tax revenues. Any impairment of the ability of a government to tax labour, like mobility, could thus lead to important revenue losses.

Typical concerns about labour mobility relate to the fact that it is more difficult to tax a mobile factor and that tax competition might drive taxation of labour down, since high tax rates might constitute an incentive for emigration, especially of the highly skilled.²⁶ Similar concerns apply of course, *a fortiori*, to the taxation of capital, which is highly mobile. Labour mobility remains much lower than capital mobility, but in principle the concerns for public finance are similar for both factors of production. D'Albis et al. (2018) note that to the extent that skilled workers are in a position to take decisions concerning the location of capital (both at the level of their business and as savers), labour and capital mobility are likely to be intertwined. And so is taxation of labour and capital.²⁷

²⁴ The tax wedge is computed considering a number of typical taxpayer scenarios, in terms of household composition and income levels, and in each case applying the tax rules of the country concerned to calculate the effective tax rate. It also includes personal income taxes and employee and employer social security contributions but deducts family allowances

²⁵ In recent years there has been a growing debate among EU MS governments about taxation of labour. A 2014 Eurogroup discussion highlighted the importance of reducing the tax burden, but also the obstacles impeding the implementation of such reductions. In spite of the broad consensus on the relevance of reducing the tax wedge to promote growth and jobs, there has been limited progress. On the contrary, fiscal consolidation needs in some MS led to (temporary) increases in personal income taxes.

²⁶ Bénassy-Quéré et.al. (2014) indicate that up to now, there is limited evidence that mobile labour locates on the basis of tax reasons. This seems to be the case even if the semi-elasticity of migration appears higher for higher incomes and some countries had a successful preferential with tax treatment for high-earning foreigners.

²⁷ The authors find evidence that labour mobility puts downward pressure on labour taxation and upward pressure on capital taxation. They also find a non-linear impact of labour mobility on capital taxation depending on the skill level of the country:

However, labour and capital are factors of production with different features. One raises a key difference between the tax competition for labour and that for capital. Workers usually reside in the place (country) where they earn their income and pay taxes. Given differences in (pre-tax) wages, the decision to relocate then has to take into account a package of national tax rates combined with local public goods (e.g. infrastructure and other amenities). As emphasised already by Tiebout (1956), this can then lead to a beneficial competition among jurisdictions regarding the best package of taxes and local public goods.

High tax jurisdictions might thus attract mobile labour if the revenues from these taxes are used to provide high quality public goods. The countries most likely to win this competition are those making the most efficient use of tax revenues. Low levels of corruption or high levels of administrative capacity would in this view be more important than low tax rates on labour. Labour mobility increases the pressure on jurisdictions with high corruption (or in general those where tax revenues are not well used) to reform so as to avoid continuously losing inhabitants.

Taxes (and local public goods) are of course not the only, perhaps not even the main driver of mobile workers in the EU, but as wage differentials narrow, differences in the combination of tax rates and quality of life should become relatively more important.

The conjecture that migration decisions are influenced not only by wage differentials and employment prospects, but also other structural factors which affect standard of living, was already highlighted in the previous section.

Overall, while the temptation to lower taxation on labour to prevent further shrinking of the tax base is strong, this may not work as other factors could be much more important when deciding about moving. Satisfaction with standards of living, including opportunities for children, may be much more relevant than a lower marginal tax rate on income. This could be especially the case for high-skilled workers.

Our own analysis indicates that, at least at present, outward mobility seems to be larger for low- than for high-(labour)-tax countries. This is the opposite of what one would expect, but should not be surprising given that most of the sending countries in the East have low tax rates and most of the major host countries of mobile citizens are the high tax countries in the North-West of the EU.²⁸

Tax competition for mobile labour should thus not be an important concern. It would anyway be at odds with the idea that the free movement of workers in the EU is a beneficial aspect of the single market and it also seems to contradict the idea that the movement of workers is a channel for absorbing country-specific shocks.

Moreover, it is not as clear as it appears at first sight that outward mobility is a net negative for the country. A number of important points need to be considered: the magnitude of the flows of workers, whether flows are temporary or permanent, and the soundness of the public finances of the sending countries. Limited flows of a temporary nature are an opportunity for those moving and an advantage for both the sending and the receiving country. If flows are large, permanent and from a country with weak public finances, this can even lead to depopulation and fiscal issues.

in relatively low-skilled countries, labour mobility puts upward pressure on capital taxation whereas in relatively high-skilled countries, labour mobility affects capital taxation negatively.

²⁸ In technical terms we ran a simple cross-section regression in which we explained the stock of mobile citizens for each country by its size (in small countries a move is more likely to be cross-border), by income per capita (citizens of rich countries are less likely to move abroad in search of a better job) and the local tax rate on labour. We found a very strong (partial) impact of taxation on the number of mobile citizens: each percentage point increase in the tax on labour is associated with a fall of 0.4 percentage points in the share of the working age population that lives elsewhere in the EU.

5.2 Costs and benefits of emigration: role of remittances

As argued above, remittances can have positive and negative effects on public finances. Remittance inflows could either raise consumption-based tax receipts, namely VAT, or reduce labour tax revenue by affecting labour decisions through the reservation wage. They can also affect private savings and investment in physical and human capital by alleviating credit constraints.

Campos-Vazquez and Sobarzo (2012) provide one of the few detailed calculations of the overall impact of emigration on public finances (using the case of Mexico) and find that the overall impact of emigration on public finances can become positive once remittances are taken into account. They estimate that if the actual remittances had been saved, the increase in Mexico's GDP would have been high enough to more than compensate the direct revenue losses induced by a shrinking income tax base.²⁹

The size of remittances to EU NMS appears to be significant. This was especially the case until the mid-2010, when for some countries reported remittances amounted to several percentage points of GDP. More recently amounts have diminished. One explanation for it is that when migration becomes permanent, transfers to families in the home countries tend to shrink.

A key issue with remittances and the assessment of their impact on the economy is that they are difficult to measure and their use difficult to track. Transactions captured by national central banks usually underestimate the total amount remitted by emigrants. Surveys in Romania, where registered remittances are very high,³⁰ provide a better idea of the phenomenon. Different national surveys³¹ estimate that around 60% of Romanian emigrants regularly sent money to relatives living in Romania and more than one third make them in cash, which is not recorded in official statistics. This could give a rough indication of the extent of the underestimation of official data.

Survey estimates suggest that approximately 10% of all spending on durable consumer goods was from remittances,³² which would suggest that about 10% of all VAT revenues are due to remittances. Of course, not all the transfers finance consumption; Alexe et al. (2012) find that on average about 30% of remittances was transferred with the specific purpose of being saved or invested.

5.3 Demographics, labour mobility and public finances

Most EU MS face challenges related to demographic developments in the short and/or medium term, driven by falling fertility rates and increases in life expectancy. In each member state there will – without net immigration – be fewer people in the primary working ages relative to the number of people in retirement, so increasing the old age dependency ratio, an indicator which measures the number of potential workers per retired person. While this challenge is well-known and ‘slow burning’, it may be exacerbated by outflows of mobile citizens since the age profile of those moving is younger than that of the average population. Similarly, countries with an inflow of younger workers may see their demographic challenges diminish.

²⁹ Remittances are not the only factor mitigating the fiscal impact of emigration. In countries with high unemployment, a lower number of workers at home may lead to lower unemployment, which implies less public expenditure, and higher wages, which should translate into a positive effect on labour tax revenues.

³⁰ The most accurate assessment of the amount of remittances sent by Romanian emigrants remains the one provided by the central bank. In the case of Romania, as already mentioned in section 4.1.1 remittances have grown over time, with some fluctuations in their importance relative to GDP, with a peak of 4.5% in 2005 and 4.4% in 2009.

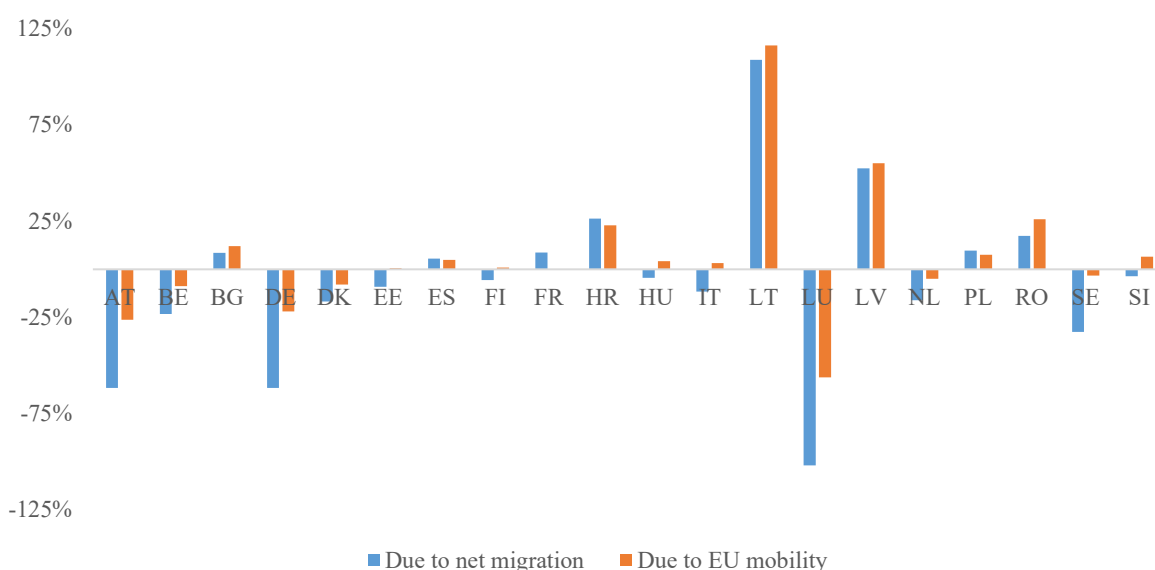
³¹ See Alexe et al., (2012) among others.

³² Roman and Voicu (2010).

There are two primary financial concerns related to population ageing. One is the financing of increasing pensions and demand for health services with a relatively smaller tax base. The second issue is that of servicing (high) debt in the face of a shrinking workforce in absolute terms.

To assess to what extent labour mobility has changed the scope of demographic challenges it is necessary to take *net* labour mobility in the relevant age groups into account. In addition, the impact of third-country migration should also be considered. Outflows of mobile workers may be compensated by inflows of third-country nationals, thereby easing the impact on the old age dependency ratio. Figure 13 shows, for selected countries, the relative average impact of total net migration flows from third countries and of net EU mobility on demographic change in the period 2013-2017.³³ A positive value indicates that migration has accelerated population ageing. Net immigration has helped Germany slow its demographic shift down to less than half the speed it would have been without migration. Around one third of this slowdown is due to EU mobility (i.e. a net inflow of relatively younger EU citizens). For Bulgaria, migration has accelerated population ageing by close to 10%, for Romania by almost 20%, and in Latvia and Lithuania, the shift has been even more dramatic. For these countries net EU mobility is the driver, whereas labour mobility has had a small effect on demographics in Italy and Spain relative to a situation with zero net mobility.

Figure 13. Average impact of migration and mobility on the change in the old age dependency ratio, 2013-2017 (%)



Source: Own calculations based on Eurostat data.

Note: Data not available for Greece, UK, Czech Republic, Ireland, Cyprus, Malta, Portugal, Slovakia. For some countries the time period deviates from 2013-2017.

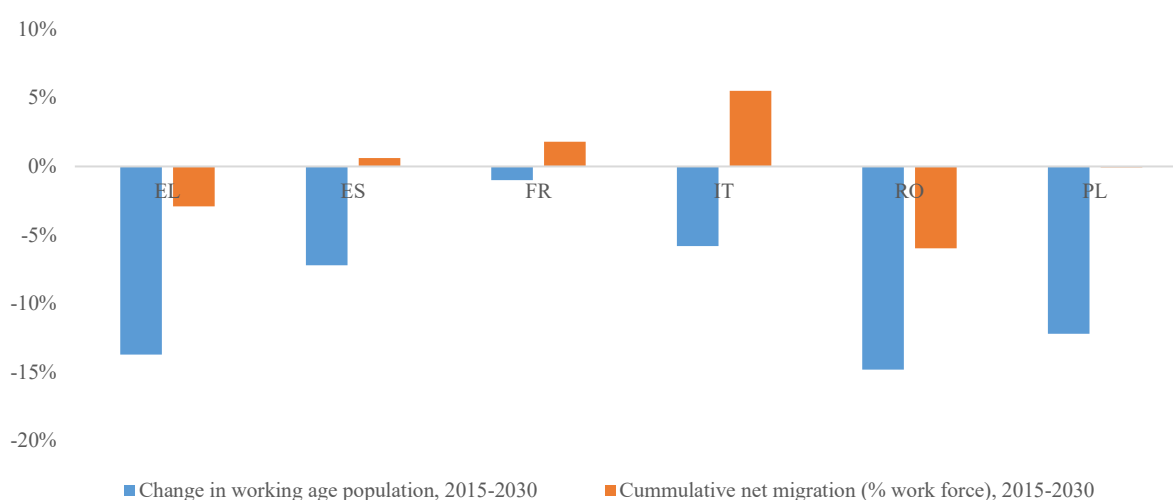
A fall in the labour force in absolute terms adds to the difficulty of servicing debt if the stock of debt is large. It also makes it more challenging to bring the debt-to-GDP ratio down. A number of countries could see their potential labour force (20-64 year olds) fall in absolute terms. Although population ageing has been occurring for a long period, an absolute fall in the labour force is a relatively new phenomenon in Western Europe. A fall of 10-15 percent is projected for Romania, Poland and Greece, whereas it will be more modest for Spain and Italy (Figure 14). For Italy, the projection includes a

³³ Period chosen according to data availability (see Box 2 on data limitations).

relatively large component of net migration, so if productive net migration does not occur – or EU mobility out of Italy accelerates – it could result in a fall in the labour force of more than 10%.

With their potential labour force projected to contract, Italy, Greece and Spain may be more vulnerable to additional outward labour mobility due to large debt-to-GDP ratios. Public debt is a less important concern for countries in the east, e.g. Poland and Romania. However, many face much faster demographic shifts in the coming decade. If emigration remains substantial this may cause problems, mostly in terms of reducing potential growth. But there is also plenty of unused potential in these countries in terms of increasing labour force participation (in particular that of women) and extending working lives.

Figure 14. Projected cumulative change in potential workforce (20-64 year olds) to 2015-30, selected countries



Source: Own calculations based on Eurostat population projections.

Note: Selected countries.

6. Labour mobility in the EMU: adjustment mechanism or a magnifier of shocks?

It is widely accepted that a well-functioning currency area needs labour mobility to facilitate adjustment to regional shocks (see Mundell, 1961). The underlying idea is that in a monetary union, where monetary policy is centralised, if a country experiences an asymmetric shock which leads to high unemployment, emigration can represent a safety valve. When the unemployed emigrate, the government might gain because of lower expenditure on unemployment and other social benefits.

However, as already argued above, labour mobility can also have unintended negative consequences, whether inside or outside a monetary union. Eichengreen (2014 and 2018) maintains that if that skilled, educated, prime-age workers, who are the most mobile, are those to emigrate in response to a local shock, labour mobility will be a source of brain drain. Falling human capital and productivity will then be an unintended consequence of economic adjustment. Emigration may also fail to facilitate adjustment

if emigrants have relatively high propensities to consume. Emigration will reduce the supply of labour, but also depress aggregate demand, and hence the demand for labour.³⁴

A further reason why labour mobility might actually render adjustment more difficult can materialise when the country experiences a public debt crisis, which forces the government to increase taxes and cut social services. The labour tax increase could then lead to emigration of labour (especially those with potentially high earnings), which in turn lowers income and expenditure at home. The concern in this case is that even those with a job might emigrate when taxes on labour increase. This mechanism can also feed on itself since emigration spurred by tax increases lowers the tax base, and thus may foster further tax rises and further emigration.

A combination of such negative outcomes of outward mobility could make the economic adjustment more difficult, rather than easier. As illustrated above, some of these effects, brain drain in particular, could be relevant for some southern euro area countries whereas taxation does not seem to be a major issue. The absence of job opportunities appears the key driver of emigration.

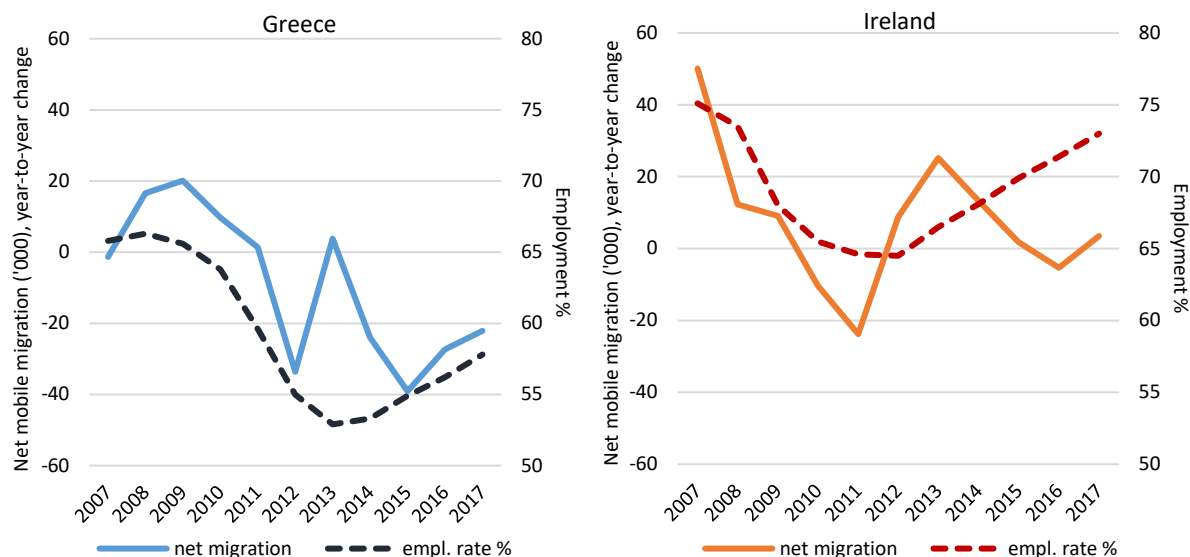
There is some evidence for the hypothesis of Mundell that emigration reacts to an asymmetric shock. As mentioned above, D'Albis et al. (2018) find empirical evidence that mutual euro area membership intensifies migration towards countries with a relatively low unemployment rate and the phenomenon has increased since 2010. This also emerges from a cursory examination of mobility flows over time.

The Greek case is a clear example (LHS panel of Figure 15): net migration was positive and on the rise until 2009, when the employment rate began decreasing. Since the crisis, the net migration flow has turned around and become negative (with the exception of 2013).³⁵ During the boom years up to 2008, Greece experienced a large influx of workers (but mostly from non-EU countries), which also dried up when the country went into crisis. This combined with large outflows of nationals. The main problem of Greece is clearly its large public debt. The sustainability of Greek debt has been subject to many studies and discussions, but, aside from any final assessment, it is clear that the potential growth rate, which in turn depends, *inter alia*, on the expected rate of emigration, is of key importance. Greece is now experiencing a substantial rate of emigration, particularly of the highly skilled, as noted above. The high rate of taxation necessary to service the large public debt is likely to be one factor, which could exacerbate this trend.

³⁴ For a model see Farhi and Werning (2014) who predict that labour mobility does not help to absorb shocks which originate in low domestic demand. Their model might have different implications for Spain and Ireland, which both experienced a large idiosyncratic shock. One important difference between Ireland and Spain was the current account. Spain had run very large deficits during the boom years, reaching 15% of GDP in 2007, whereas the external deficits of Ireland had remained much more modest (with a peak of 5% of GDP). In Spain, emigration of (mostly unemployed) foreign workers previously occupied in the non-tradeable sector (construction) also lowered domestic demand, but helped to accelerate the current account adjustment.

³⁵ The year 2013 also constitutes an outlier for other countries. It is possible that there was a change in the statistical methods in that year.

Figure 15 Net migration within EU and employment rate at origin: the case of Greece (LHS) and Ireland (RHS)



Note: Working age population (20-64 years old) is considered.

Source: Own elaboration based on Eurostat (lfst_lmbpcita, lfsa_pganws, lfsl_emp_a).

The case of Ireland is another interesting example. One observes a pattern similar to that for Greece, with net immigration turning into net emigration within a few years. During the boom years preceding the crisis there was a strong inflow of workers into the country, which reversed when the crisis led to a large increase in unemployment, turning into outflows. This was the stabilising impact of labour mobility. But emigration also lowered domestic demand, possibly exacerbating the fall in house prices, which had been a major factor in the crisis.³⁶

This is not to say that labour mobility is a net negative, only that there are mechanisms that can magnify the impact of negative shocks, rather than facilitating the adjustment.³⁷

7. Policy implications

Freedom of movement of workers is one of the fundamental ‘four freedoms’ of the EU and has brought great economic benefits. Mobile workers abroad contribute considerably to the GDP of their host countries and their total earnings are in some cases highly significant relative to the earnings of the remaining workforce in the origin country.

³⁶ More recently inflows have increased again as the Irish economy has recovered, thus reinforcing the recovery in house prices. Labour mobility can thus magnify both the boom and bust phase of a real estate cycle.

³⁷ Eichengreen (2014) notes with reference to the US experience as well: “Recent experience has cast the role of labour mobility within monetary union in a less favourable light. First, it has shown labour mobility to be a less powerful mechanism of adjustment in the context of major shocks. Dao, Furceri and Loungani (2014) show that even the relatively strong migratory response in the U.S. has been insufficient to prevent sharp increases in unemployment and reductions in the labour force participation rate in particular regions. Migration as a mechanism of adjustment has been especially problematic in the context of the Great Recession. Insofar as the recent shock was global rather than local, there were few booming regions for the residents of depressed regions to migrate to. This may be part of the explanation for why the migratory response to the crisis and subsequent recession were not greater.”

However, labour mobility can also have negative effects. This is the case when mobility is selective, leading to brain drain and hampering potential growth. But also when emigration erodes the tax base, making it more difficult to service a large public debt.

In the context of the EU, we find that (today) there is little difference east to west between low and high-skilled outwards mobility rates; and thus, a priori, little evidence of an ongoing 'brain drain'. Emigration rates from south to north in the euro area, by contrast, are more highly skewed towards the highly skilled. Furthermore, 'brain circulation' is a feature of richer northern EU member states.

Large-scale emigration might impose costs on the home country. The fiscal costs, of a reduced labour force and a smaller tax base leading to lower income tax revenue, can be significant when a substantial fraction of the domestic labour force emigrates. However, a smaller population also implies expenditure savings, and some of the mobile workers might have been unemployed if they had remained. The loss of income tax revenues from a smaller domestic work force should also be offset by higher VAT revenues on domestic expenditure financed by remittances. Moreover, remittances can contribute to the domestic capital stock, thus facilitating higher productivity and wages, and, indirectly, higher tax revenues.

For countries with high debt levels, an ageing population, coupled with emigration, can worsen debt sustainability. Effects are still limited, but the outlook is a reason for concern.

Going forward, the wage gap, which has worked as strong east-west pull factor, is likely to become less important as wages continue to converge. For some countries, such as Poland, where wages (in PPS) have converged substantially towards the level of old EU countries, there is some evidence that outwards mobility has already been reduced. For other NMS, the gap in wages remains very large and flows are expected to continue for some time.

Labour taxation, by contrast, does not seem to play a central role in migration decisions.

Higher (after tax) wages are not the only motive for mobility. The quality of public services constitutes another important factor. Unfortunately, some southern and eastern member states seem to struggle to enhance the quality of life for their citizens through effective public spending and provision of high quality public goods. They may experience the largest outflows of workers and hence the greatest challenges to growth and sustainability of pensions systems and public debt. From a policy perspective, this implies that while taxation of labour may be important, public expenditure, and its quality, may be even more so.

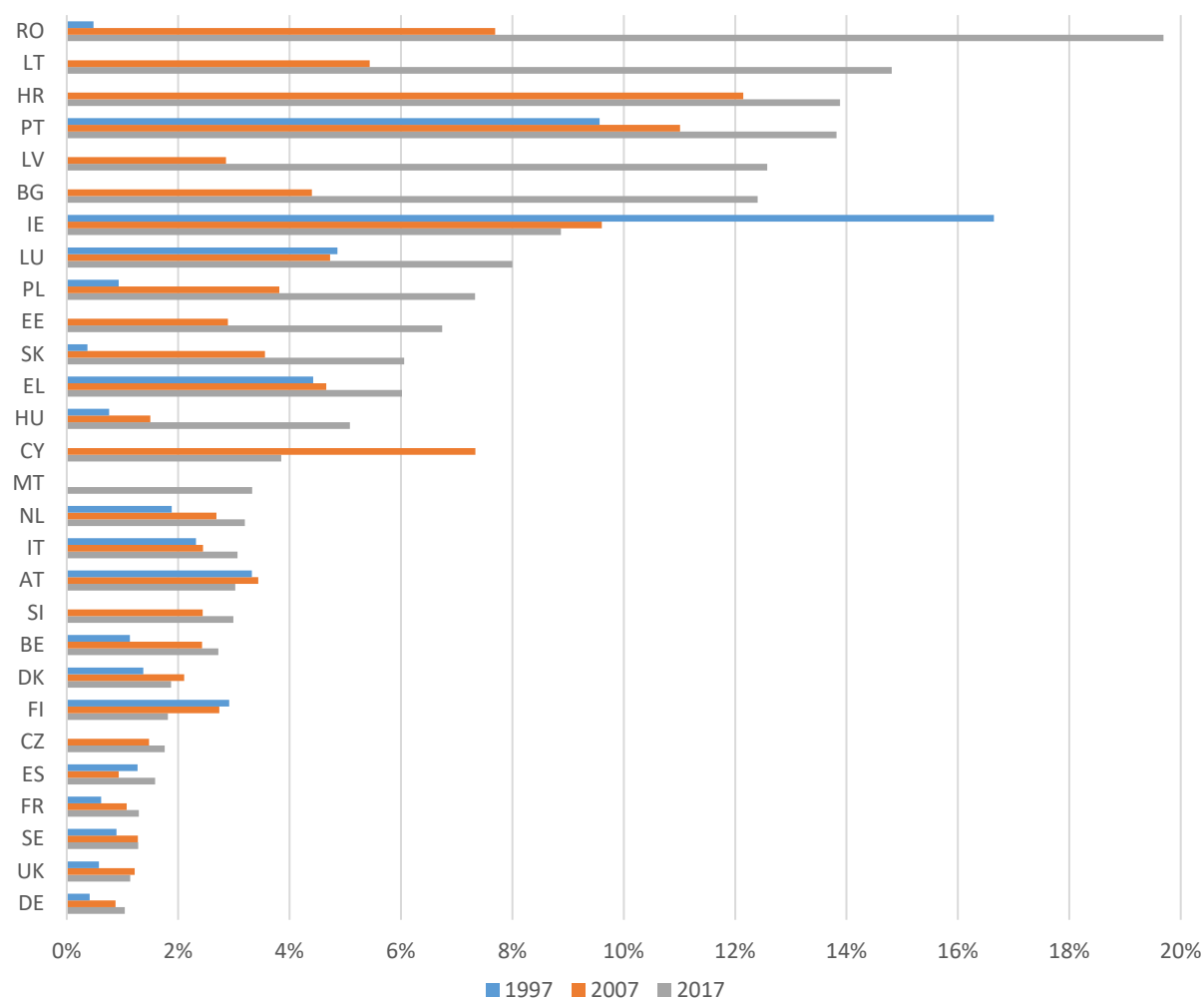
References

- Alcidi, C., M. Barslund, M. Busse and F. Nicoli (2016), “Will a European unemployment benefits scheme affect labour mobility?”, CEPS Special Report No. 152, CEPS, Brussels, December (<https://www.ceps.eu/system/files/SR152%20EUBS%20and%20Labour%20Mobility.pdf>).
- Alcidi, C and D. Gros (2018) “Convergence in the European Union: Inside and outside the euro”, Centre for European Policy Studies, CEPS, Friday, 27 April 2018, <https://www.ceps.eu/publications/convergence-european-union-inside-and-outside-euro>.
- Alexe I., I. Horváth, R. Noica, M. Radu (2012) “Social Impact of Emigration and Rural-Urban Migration in Central and Eastern Europe”, Country Report, Romania, VT/2010/001 [file:///C:/Users/admin/Downloads/FCR_RO_main%20report_EN%20\(1\).pdf](file:///C:/Users/admin/Downloads/FCR_RO_main%20report_EN%20(1).pdf)
- Arslan, C. J.-C. Dumont, Z. Kone, Y. Moullan, C. Ozden, C. Parsons, T. Xenogiani (2014), “A New Profile of Migrants in the Aftermath of the Recent Economic Crisis”, OECD Social, Employment and Migration Working Papers, No. 160, OECD Publishing. <http://dx.doi.org/10.1787/5jxt2t3nnjr5-en>
- Atoyan, R., L. Christiansen, A. Dizioli, C. Ebeke, N. Ilahi, A. Ilyina, G. Mehrez, H. Qu, F. Raei, A. Rhee, and D. Zakharova (2016), “Emigration and Its Economic Impact on Eastern Europe”, IMF Staff Discussion Note, SDN16/07
- Barslund, M. and M. Busse (2016), “Labour Mobility in the EU Addressing challenges and ensuring ‘fair mobility’”, CEPS Special Report No. 139, CEPS, Brussels, July (<https://www.ceps.eu/system/files/SR139%20MB%20and%20MB%20LabourMobility.pdf>).
- Batsaikhan, U., Z. Darvas and I Gonçalves Raposo (2018) People on the move: migration and mobility in the European Union, http://bruegel.org/wp-content/uploads/2018/01/People_on_the_move_ONLINE.pdf
- Beine, M. F. Docquier, and H. Rapoport (2008) “Brain Drain and Human Capital Formation in Developing Countries: Winners and Losers” The Economic Journal, Vol.18, Issue 528, April 2008, p. 631-652
- Bénassy-Quéré A., A. Trannoyb and G. Wolf (2014) Tax Harmonization in Europe: Moving Forward, Les notes du conseil d’analyse économique, no 14, July 2014
- Campos-Vazquez R. and H. Sobarzo (2012) “The development and Fiscal effects of Emigration on Mexico”, The regional migration Study Group, https://www.wilsoncenter.org/sites/default/files/development_fiscal_effects_emigration.pdf
- D’Albis, H. A. Bénassy-Quéré, A. Schurich-Rey (2018). Taxing capital and labor when both factors are imperfectly mobile internationally. PSE Working Papers n°2018-40.
- Dao, Furceri and Loungani (2014) Regional Labor Market Adjustments in the United States and Europe, IMF Working paper, WP/14/26
- De Rosa D., G. Russo and A. S. Dospinescu (2018) “Romanian migrants can make a difference back home” <http://blogs.worldbank.org/europeandcentralasia/romanian-migrants-can-make-difference-back-home>

- Docquier, F. and H. Rapoport (2004) "Skilled Migration: The Perspective of Developing Countries" Policy Research Working Paper; No.3382. World Bank, Washington, D.C.
- Eichengreen, B. (2014) 'The Eurozone crisis: the theory of optimum currency areas bites back', Notenstien Academy White Paper Series, pp. 1-18.
- Eichengreen, B. (2018) "Optimum Currency Areas Past and Future" Oxford Research Encyclopaedias, Financial Economics Online, June
- European Commission (2018) "2018 annual report on intra-EU labour mobility", <https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8174&furtherPubs=yes>
- Farhi, E., and I. Werning (2014) "Labor Mobility Within Currency Unions", <https://scholar.harvard.edu/files/farhi/files/mobility.pdf>
- Goschin, Z. (2016) "Main Determinants of Romanian Emigration. A Regional Perspective", Bucharest University of Economic Studies, https://mpra.ub.uni-muenchen.de/88829/1/MPRA_paper_88829.pdf
- Gros, D., R. Musmeci and M. Pilati (2018) "The European Dimension of Regional and Cohesion Policies", Centre for European Policy Studies (CEPS) and LUISS, Wednesday, 11 April 2018, <https://www.ceps.eu/publications/european-dimension-regional-and-cohesion-policies>
- Jauer, J., et al. (2014), "Migration as an Adjustment Mechanism in the Crisis? A Comparison of Europe and the United States", OECD Social, Employment and Migration Working Papers, No. 155, OECD Publishing, Paris, <https://doi.org/10.1787/5jzb8p51gvhl-en>.
- Joint Research Centre (2018) A global analysis of intentions to migrate, https://ec.europa.eu/jrc/sites/jrcsh/files/technical_report_on_gallup_v7_finalpubsy.pdf
- Kancs, d'Artis and Patrizio Lecca (2017) "Long-term Social, Economic and Fiscal Effects of immigration into the EU: The Role of the Integration Policy", Joint Research Centre, JRC Working Papers in Economics and Finance, 2017/4, http://publications.jrc.ec.europa.eu/repository/bitstream/JRC107441/jrc107441_wp_kancs_and_lecca_2017_4.pdf
- Molloy, Raven, Christopher L. Smith, and Abigail Wozniak, (2011), "Internal Migration in the United States." Journal of Economic Perspectives 25(3), 173-196. <https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.25.3.173>
- Mundell R. (1961), A Theory of Optimum Currency Areas, American Economic Review, Sept., 657-665.
- OECD (2013), International Migration Outlook, 2013, OECD Publishing.
- Roman, M., and C. Voicu, (2010) Several socio-economic effects of labour migration on the country of emigration. Case of Romania, in: Economie teoretică și aplicată, 17(7), p.50-65
- Tiebout C. M. (1956) A Pure Theory of Local Expenditures, Journal of Political Economy, Vol. 64, No. 5 (Oct., 1956), pp. 416-424

Annex I

Mobile citizens relative to population in origin country, selected years: 1997-2007-2017, working age population (20-64)



Source: Authors' elaboration based on Eurostat.